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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/764,454	01/27/2004	Tatsuhiko Saitoh	50395-247	8678
<div>7590 12/27/2007 McDERMOTT, WILL &amp; EMERY 600 13th Street, N.W. Washington, DC 20005-3096</div>			<div>EXAMINER DEGHAN, QUEENIE S</div>	
			<div>ART UNIT 1791</div>	<div>PAPER NUMBER</div>
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/764,454

Applicant(s)

SAITOH ET AL.

Examiner

Queenie Dehghan

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 31 October 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-6 and 8-12 is/are pending in the application.
- 4a) Of the above claim(s) 10-12 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6, 8 and 9 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☒ Claim(s) 10-12 are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date: _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date: _____   | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on October 31, 2007 has been entered.

### ***Election/Restrictions***

2. Newly submitted claim 10-12 are directed to an invention that is independent or distinct from the invention originally claimed for the following reasons:
3. Restriction to one of the following inventions is required under 35 U.S.C. 121:
- I. Claims 1-6 and 8-9, drawn to a method for producing optical fiber preform, classified in class 65, subclass 385.
  - II. Claims 10-12, drawn to a microstructure optical fiber product, classified in class 385, subclass 125.

The inventions are distinct, each from the other because of the following reasons:

4. Inventions Group I and Group II are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make another and materially different product or (2) that the product as claimed can be made by another and materially

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different process (MPEP § 806.05(f)). In the instant case the product as claimed can be made by another and materially different process such as stack and draw process.

5. Restriction for examination purposes as indicated is proper because all these inventions listed in this action are independent or distinct for the reasons given above and there would be a serious search and examination burden if restriction were not required because one or more of the following reasons apply:

- a. the inventions have acquired a separate status in the art in view of their different classification;
- b. the inventions have acquired a separate status in the art due to their recognized divergent subject matter;
- c. the inventions require a different field of search (for example, searching different classes/subclasses or electronic resources, or employing different search queries);
- d. the prior art applicable to one invention would not likely be applicable to another invention;
- e. the inventions are likely to raise different non-prior art issues under 35 U.S.C. 101 and/or 35 U.S.C. 112, first paragraph.

Applicant is advised that the reply to this requirement to be complete must include (i) an election of a invention to be examined even though the requirement may be traversed (37 CFR 1.143) and (ii) identification of the claims encompassing the elected invention.

6. The election of an invention may be made with or without traverse. To reserve a right to petition, the election must be made with traverse. If the reply does not distinctly

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and specifically point out supposed errors in the restriction requirement, the election shall be treated as an election without traverse. Traversal must be presented at the time of election in order to be considered timely. Failure to timely traverse the requirement will result in the loss of right to petition under 37 CFR 1.144. If claims are added after the election, applicant must indicate which of these claims are readable on the elected invention.

7. If claims are added after the election, applicant must indicate which of these claims are readable upon the elected invention.

8. Should applicant traverse on the ground that the inventions are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the inventions to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention.

9. Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 10-12 are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

***Claim Rejections - 35 USC § 112***

10. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the

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art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

11. Claim 9 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claim 9 recites the through holes are not etched. The specification does not appear to offer support for this limitation.

12. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

13. Claims 1-6 and 8-12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 1 recites the limitation "that the bond of SiO that has adhered to the interfaces of the air holes is stabilized". There is insufficient antecedent basis for this limitation in the claim. Furthermore, the second step recites suppressing the formation of SiO gas. It is unclear what bond of SiO is adhered, if SiO is suppressed in the second step.

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 1-6 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Arimondi et al. (2005/0072192) in view of Nagayama et al. (2002/0059816 and 6,400,878) and Suzuki et al. (2003/0126891). Regarding claims 1 and 2, Arimondi et al. disclose a method for preparing an optical fiber preform having through holes to be formed into air holes and drawing the optical fiber preform into a fiber with the air holes ([0001], [0005], [0026], figure 1). In the drawing step, Arimondi et al. disclose pumping a hydrogen free gas into the through holes of the preform during drawing ([0115]). However, Arimondi et al. fail to specifically disclose the presence of oxygen gas in the through holes when drawing the optical fiber preform. Suzuki et al. teach a process for drawing optical fiber preform and discuss the formation of SiO gas during the drawing process ([0004]). Suzuki et al. also teach that it is necessary to suppress the formation of the SiO gas by blowing oxygen on the preform while drawing ([0016], [0018]). It would have been obvious to one of ordinary skill in the art at the time of the invention to utilize oxygen as the gas present in air holes of the optical fiber preform of Arimondi et

al. since oxygen will prevent the sublimation of SiO that is formed during drawing of optical fibers, as taught by Suzuki et al.

4. Also, Arimondi et al. do not disclose a third step of heating the optical fiber in an additional furnace. However, Suzuki et al. teach removing SiO adhered to the surface of an optical fiber preform by heating ([0004]). Nagayama et al. (878) teach of a step of heating the optical fiber to a temperature of 1100°C for 3 seconds (col. 12 lines 64-67) in an additional heating furnace located downstream of a drawing furnace (col. 5 lines 46-48). The annealing would prevent the drawn fiber from cooling drastically. As suggested by the method step of the applicant's invention and by Suzuki, the annealing would also stabilize any SiO that has adhered to the interfaces of the air holes and hence suppress the Rayleigh scattering intensity within the optical fiber (col. 1 lines 32-39, col. 2 lines 47-52). It would have been obvious to one of ordinary skill in the art at the time the invention was made to heat the fiber to 1100°C for 3 seconds in an additional furnace, as taught by Nagayama et al, in the fiber drawing process of Arimondi et al. in order to ensure proper annealing, as taught by Nagayama et al.

5. Regarding claims 3 and 4, Arimondi et al. do not disclose a minimum temperature of the fiber between the drawing and heating furnaces. Nagayama et al. (816) teach the use of two furnaces, a drawing and heating furnace, for forming an optical fiber, where an optical fiber usually cools to about 400°C after being drawn ([0010]). Furthermore, Nagayama et al. teach cooling the fiber with air between the drawing and heating furnaces ([0058]). It would have been obvious to one of ordinary skill in the art at the time the invention was made to heat the fiber to 1100°C as



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mentioned in claim 1, which is higher than the air-cooled down temperature of 400°C, as disclosed by Nagayama et al. in order to properly anneal the fiber.

6. Regarding claims 5 and 6, Nagayama et al. (816) teach of a drawing furnace filled with helium gas and a heating furnace filled with nitrogen gas ([0058], [0063]). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use helium gas in the drawing furnace and nitrogen gas in the heating furnace, as taught by Nagayama et al. in the drawing process of Arimondi et al. and Nagayama et al. (878), in order to provide the atmospheres needed to soften and anneal the glass fiber with a lowered transmission loss and whose outer diameter is restrained from fluctuating, as taught by Nagayama et al.

7. Regarding claim 9, the through holes in the optical fiber preform of Arimondi are not etched. Arimondi discloses the process steps for manufacturing the perform from the initial forming of the preform body to the final drawing steps, wherein the process did not include etching of the through holes ([0100]-[0115]).

8. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Arimondi et al. (2005/0072192) in view of Nagayama et al. (2002/0059816 and 6,400,878) and Suzuki et al. (2003/0126891), as applied to claim 1 above, and further in view of Kuwahara et al. (2002/0174692). Arimondi, Suzuki and Nagayama do not disclose a drawing temperature. Kuwahara et al. teach of drawing step at 1950°C. It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the drawing temperature of Kuwahara et al. in the fiber making process of Arimondi et al. and Nagayama et al. in order to properly soften the glass for drawing.

***Response to Arguments***


14. Applicant's arguments with respect to claim 1 have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Queenie Dehghan whose telephone number is (571)272-8209. The examiner can normally be reached on Monday through Friday 8:30am - 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on 571-272-1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
STEVEN P. GRIFFIN  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 1700

Q Dehghan